

Least-cost Planning in Regulated Power Systems – the US Policy Example

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What is Integrated Resource Planning?

- Integrated Resource Planning (IRP) is a planning process, required by statute or rule, that requires a utility to take a long-term view (20-30 years) of its resource needs and alternative ways to meet those needs
- In addition to the long-term view, a short-term action plan, and in some cases a resource acquisition process, usually accompanies the plan, and an update to the plan is typically required every 2-4 years
- Traditionally, IRP was focused on the addition of new resources to meet demand, but now demand side resources are also considered within the process
- In addition, planning process provides information to the public about the utility system and allows for public involvement, either during the planning process or once a plan has been drafted

Integrated Resource Planning Requirement

- “Utility integrated resource plans shall evaluate renewable energy, energy efficiency, load management, distributed generation and conventional supply-side resources on a consistent and comparable basis and take into consideration risk and uncertainty of fuel supply, price volatility and costs of anticipated environmental regulations in order to identify the most cost-effective portfolio of resources to supply the energy needs of customers. The preparation of resource plans shall incorporate a public advisory process.”
- NMSA Section 62-17-10 (emphasis added).

How does IRP work?

Utility must set forth (NM example):

- A description of existing electric supply-side and demand-side resources,
- A current load forecast,
- A load and resources table,
- Identification of resource options,
- A description of resource and fuel diversity,
- Identification of critical facilities susceptible to supply-source or other failures,
- A determination of the most cost effective resource portfolio and alternative portfolios,
- A description of the public advisory process,
- An action plan, and
- Other information that the utility finds may aid the commission in reviewing the utility's planning processes.
 - 17.7.3.9B NMAC

How does IRP work (cont.)?

- Utility takes existing information about different scenarios (and public input if applicable) and runs numerous portfolios through its modeling software
- These scenarios include energy efficiency requirements from statute, regulation, and may model different levels of energy efficiency investment
- Modeling results show, among other things, expected resource additions and dates those would be needed, present value cost of the different portfolios, CO₂ emissions over certain period, water usage...
- Utility then selects most-cost effective portfolio consistent with regulatory and other requirements and files with the regulatory body
- Different approval requirements at this point make some IRPs more of a planning exercise than a meaningful commitment (e.g. submission for acceptance versus approval, tied to RFP process...)

Where is IRP?

- As with much of U.S. energy policy, IRP regulated on a state-by-state basis so there are many models throughout the country – with some states not having IRP at all
- Also differs to some extent depending on whether the state has a regulated or deregulated market
- Some states, in particular in deregulated markets, that do not have IRP may have long-term procurement planning or similar requirements
 - Usually shorter planning periods
 - Updated more frequently
- Internationally, IRP is also used- for example, South Africa, British Columbia, others?

Consideration of Energy Efficiency: Some good and bad examples

- Treat energy efficiency as a load decrement – OK
 - New Mexico Example: looks only at statutory requirement for energy efficiency (3% of revenues)
 - Some modeling of different efficiency scenarios, but only as a function of load forecast, not as resources
 - Does not consider how much cost-justified energy efficiency could be accomplished outside of statutory requirements
- Treat energy efficiency as an equal resource – BEST!
 - PacifiCorp example: models energy efficiency in a comparable manner to supply side resources
 - Allows energy efficiency resources to compete with other resources equally

IRP can be a very helpful tool, but...

- IRP can provide information about decision making that is useful to efforts to incorporate more energy efficiency
- IRP is a very helpful tool, but it does not constitute the entire solution
- In states where efficiency is not modeled as a resource, or where the utility constrains energy efficiency to the minimum required, for example, IRP can provide information, but it does not solve underlying problems and may support an inaccurate narrative
- In many U.S. states, decoupling of utility revenues from sales is the critical step to achieving higher levels of energy efficiency

Conclusion

- IRP can provide a great deal of useful information for advocates and policy makers
- Designing IRPs to ensure that energy efficiency is considered equally with supply-side resources can make IRPs an effective place to demonstrate the value of energy efficiency
- Real value depends on how the process informs decision making!

Thank you!

Please contact me with any questions.

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